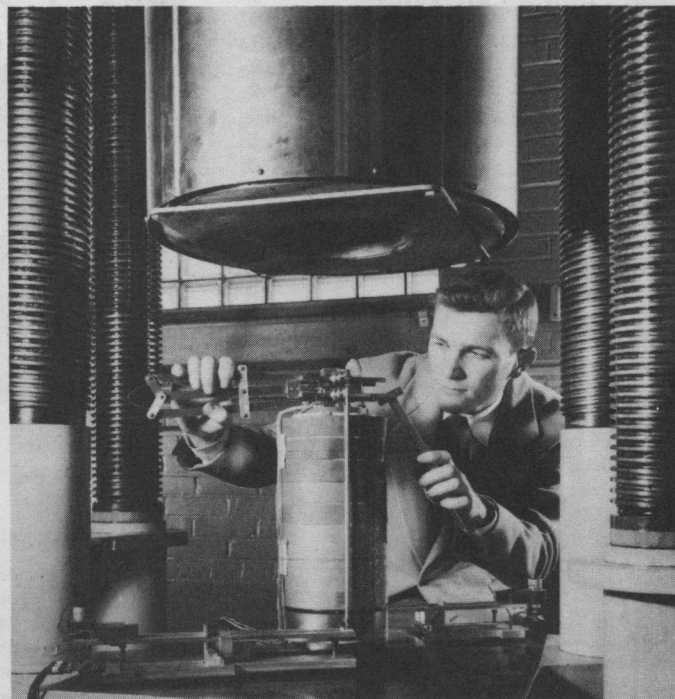
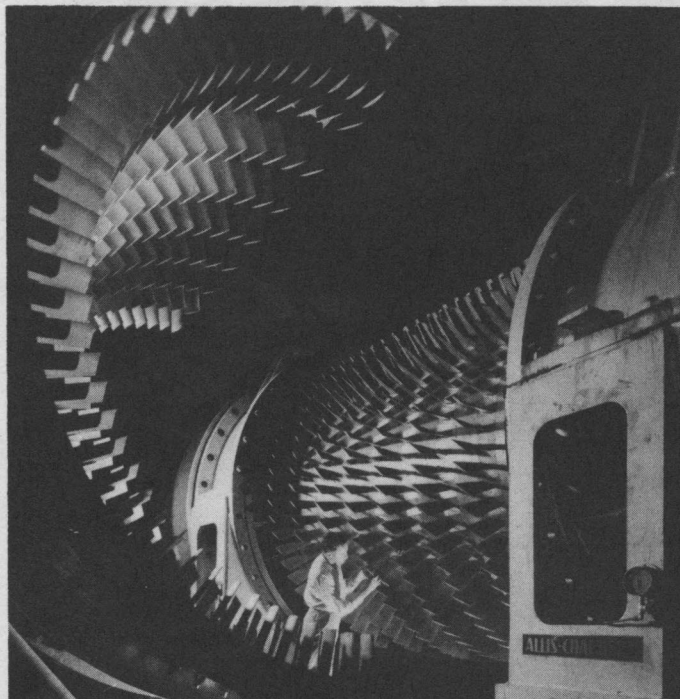
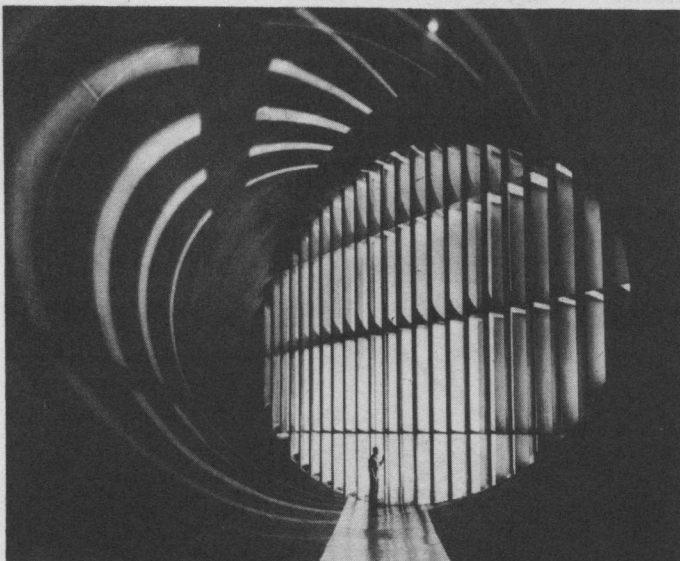


PICTORIAL VIEWS AROUND THE LABORATORY



Upper left - Guide vanes in the 19-Foot Pressure Wind Tunnel form an ellipse 33 feet high and 47 feet wide. The 23 vanes force the air to turn corners smoothly as it rushes through the giant passages. If vanes were omitted, the air would pile up in dense masses along the outside curves, like water rounding a bend in a fast brook. Turbulent eddies would interfere with the wind tunnel tests, which require a steady flow of fast, smooth air. Upper right - The 11-inch Hypersonic Wind Tunnel yields data explaining the fundamental nature of air flow at extremely high speeds. Supersonic flow conditions can be studied at five to ten times the speed of sound. Such information is scarce and is needed for the design of missiles, particularly long-range guided missiles. This photo shows the tunnel with side plate removed, exposing the nozzle and the narrow slit through which air enters under great pressure. Dr. Thomas W. Williams is shown installing a model in the test

section. Lower left - This seven-stage axial flow compressor was specially designed to push air through the 4 x 4-foot Supersonic Pressure Wind Tunnel at the rate of 860,000 cubic feet per minute at a pressure ratio of 2. The 55-ton rotor, which spins at 1,300 rpm, is so delicately balanced on bearings equipped with oil jacks that a man can turn it with one finger. The rotor is 11-1/2 feet in diameter. Lower right - Titanium, a metal with certain advantages over aluminum alloy for use in high-speed aircraft, is tested for strength at high temperatures in this apparatus at the Structures Research Laboratory. William M. Roberts is fastening a small, thin strip of the metal in place. After the circular electric oven is lowered, electronic apparatus arranged on a lever principle will measure deformation of the metal under various pressures and temperatures.

----Photos by Bill Taub